

### Question 1: [10 Marks]

#### **Q1-A) Multiple Choice Questions [5 Marks]**

1. Mobile Apps that are installed on the device and are accessed through icons on the device home screen, might be of type:  
☒ a. Native App or Hybrid App  
☐ b. Web-Based App  
☐ c. Hybrid App  
☐ d. Native App
2. Android is a software stack for mobile devices that includes:  
☐ a. Operating System  
☐ b. Middleware  
☐ c. Key Applications  
☒ d. All of the above
3. The layout that sets a control to be positioned ("above" or "below" or etc..) of another control or parent edges, referred to by its unique identifier is called:  
☐ a. Linear  
☐ b. Grid  
☒ c. Relative  
☐ d. Table
4. Mobile Computing should:  
☐ a. Allow users to use computing power anywhere and anytime.  
☐ b. Be portable.  
☐ c. Allow users to publish and subscribe to information  
☒ d. All of the above
5. GPRS(General Packet Radio Service) is considered:  
☐ a. 1G wireless communication technology  
☒ b. 2G wireless communication technology  
☐ c. 3G wireless communication technology  
☐ d. None of the above

#### **Q1-B) True (T)/False (F) [5 Marks]**

1. iPhone and iPad applications are typically written in Objective-C and compiled to ARM machine code. On the other hand, Android applications are written in Java and the Java source code is compiled to Dalvik Executable (DEX) binaries that are run on the Dalvik virtual machine. (   T   )

2. Applications for Android phones are installed only via the Google Play Store. Application APK files can't be copied onto the device and installed manually to protect users from installing malware apps. ( F )
3. Android Native Libraries are written in Java ( ~~T~~ )
4. Dalvik Virtual Machine is a type of JVM used in android devices to run apps and is optimized for low processing power and low memory environments. ( T )
5. In Android, Linear, Relative and Table layouts can be used as nested layouts in one Activity. ( T )

**Question 2: Fill-in Blanks [ 12 Marks]**

1. Which mobile app type is best suited for each of the following cases? (Use Native or Web-Based)
- a. App that have complex Design and UI Native
  - b. App that is trying to monetize contents and encourage purchasing ~~web-Based~~
  - c. App that can be discovered and attracts users by search engines ~~web-Based~~
  - d. App that requires frequent updates ~~Native~~
2. A cellular network or mobile network is a wireless network distributed over land areas called ~~celles~~, each served by at least one fixed-location ~~tower~~, known as base station.

3. The main Android Application Components are called Activities, Services, Content Providers and Broadcast Receivers, which component is responsible for each of the following:

- a. Broadcast Receiver is used to receive messages that are sent by the Android system or other Android applications.
- b. Activities is individual user interface screen in an Android application and the users can interact with it.
- c. Services is an Android application component that runs in background and has no visual UI to perform processing tasks for applications.
- d. Content providers is a flexible way to make data available across applications.

4. In the Android Layout, the attribute used to set the position of a control is called gravity and the attribute used to distribute the importance of controls which leads the control to take more or less of the parent space is called weight.

**Question 3: Answer the following Questions Briefly [13 Marks]**

1. Why does each cell tower in a mobile network use different set of frequencies from neighboring cells? Give 2 Reasons [2 Marks]

1) To not interact with neighboring cells and make it unique frequency.

2) it's good if it's compare it's will coverage a large space and it's also better than signal transmitter.



2. Privacy of Smartphone user is a major concern especially when they install third party apps. Give three examples of security threats that effect user privacy and then explain how Android protects users from this kind of threats. [4 Marks]

1) it's may access The Data of the contact book for Example and modify it or Tocket if it has permissions.

2) it's make take a pictchers or vidious if it has permission at access camera.

3) also it make acces to any of account or E-mails That contain Bussnis Info.

To avoid it Android use permission in manifest and when

3. Android Virtual Device (AVD) can emulate mobile system images and it is essential for testing app in computer but has many limitations. List three limitations of AVD? [3 Marks]

1) it's can not see the battery power.

2) it's can not Do a phone calls using it.

3) it's can not use The camera to take pictcher and vidior.

4) it's can not to see SD card if it's set or reject.

you downloade it it's tell you about it. also it put all source of app in file. App can acces to it.

4. What is the purpose of AndroidManifest.xml file in the Android and what kind of information it contains (Give three examples)? [4 Marks]

it's for puting in it all activites that in the application and all information about it and in it we can Define witch activity the app will start with also in it all permissions

That app needed we put it in <permissions> tag.

#### Question 4: Output [6 Marks]

What is the output of the following layout? (Note: the default orientation for LinearLayout is horizontal)

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"    android:layout_height="match_parent"
    android:orientation="vertical" >

    <ImageView
        android:layout_width="wrap_content"    android:layout_height="wrap_content"
        android:layout_gravity="center"    android:src="@drawable/lock" />

    <LinearLayout
        android:layout_width="match_parent"    android:layout_height="wrap_content"
        android:gravity="center" >

        <Button
            android:layout_width="wrap_content"    android:layout_height="wrap_content"
            android:text="ITCS103" />

        <Button
            android:layout_width="wrap_content"    android:layout_height="wrap_content"
            android:text="ITCS479" />

    </LinearLayout>

    <LinearLayout
        android:layout_width="match_parent"    android:layout_height="wrap_content" >

        <Button
            android:layout_width="fill_parent"    android:layout_height="wrap_content"
            android:text="Mobile Computing" />

    </LinearLayout>

    <CheckBox
        android:layout_width="wrap_content"    android:layout_height="wrap_content"
        android:text="Written Test" />

    <CheckBox
        android:layout_width="wrap_content"    android:layout_height="wrap_content"
        android:checked="true"    android:text="Practical Test" />

</LinearLayout>
```

## Activity Layout Output

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Image

ITCS103

ITCS479

Mobile computing

☐ Writing Test

☒ Practical Test

Practical Test